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10/577,270

04/26/2006

Dominic Berta

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07/09/2008

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EXAMINER

LENIHAN, JEFFREY S

ART UNIT

PAPER NUMBER

4171

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/577,270	<b>Applicant(s)</b> DOMINIC ET AL.	
	<b>Examiner</b> Jeffrey Lenihan	<b>Art Unit</b> 4171	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 14-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/18/2006</u> .  | 6) <input type="checkbox"/> Other: ____.                          |

### DETAILED ACTION

1. Claims 1-13 are cancelled per applicant's submission dated 04/26/2006.

#### ***Claim Rejections - 35 USC § 102/ § 103***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 14-26 are rejected under 35 U.S.C. 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Pelliconi et al, US2006/0047071, filed on 12/11/2002.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art

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under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

5. Claims 14 and 17 recite limitations regarding the composition of the instant application. Claim 14 recites a propylene polymer composition comprising the following components:

a. 50-90% by weight of a propylene homopolymer or propylene copolymer containing up to 5% by mole of derived units of C<sub>2</sub>-C<sub>20</sub> α-olefins, comprising:

- i. a polydispersity index greater than 3
- ii. a melt flow rate, as measured at 230 °C under a load of 2.16 kg, greater than 1 dg/min
- iii. a fraction soluble in xylene at 25 °C greater than 1%

b. from 5-25% by weight a copolymer of ethylene and one or more derived units of C<sub>4</sub>-C<sub>20</sub> α-olefins comprising:

- i. a content of ethylene derived units higher than 50% by mol and lower than 92% by mol
- ii. an intrinsic viscosity higher than 1.2 dL/g and lower than 6 dL/g
- iii. a density ranging from 0.850 to 0.890 g/cm<sup>3</sup>
- iv. a crystallinity content, expressed as an enthalpy of fusion, lower than 62 J/g

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c. from 5-25% by weight of a copolymer of propylene and ethylene comprising:

- i. a content of propylene derived units higher than 50% by mol and lower than 92% by mol
- ii. an intrinsic viscosity higher than 2 dL/g and lower than 6 dL/g
- iii. a density ranging from 0.850 to 0.890 g/cm<sup>3</sup>
- iv. a value of a product of reactivity ratios  $r_1 r_2$  lower than 2
- v. a crystallinity content, expressed as an enthalpy of fusion, lower than 45 J/g

wherein a weight ratio between component (b) and the sum of components (b) and (c) is equal to or higher than 0.5 and less than or equal to 0.9.

6. Claim 17 recites the limitation that the composition comprises 50-80% by weight component (a), 25-9% by weight component (b), and 25-11% by weight component (c).

7. Pelliconi discloses a polyolefin composition comprising the following (percent by weight) 55-90% by weight of a crystalline propylene homopolymer or copolymer containing up to 15% of ethylene and or C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefins ( $\P$ 0006), corresponding to component (a) above; and 10-45% of a blend of a copolymer of propylene with 15-40% ethylene, corresponding to component (c) in the instant claim; and a copolymer of ethylene with 10-40% C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefins ( $\P$ 0007), corresponding to component (b). Pelliconi further discloses that the weight ratio of the propylene/ethylene copolymer to the ethylene/ $\alpha$ -olefin copolymer falls within the range of 1/4 to 4/1 (abstract,  $\P$ 0006-0007). The examiner notes that, based on the weight ratio disclosed by Pelliconi, one

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of ordinary skill would recognize that the percent of the total composition by weight which comprises each of the ethylene/ $\alpha$ -olefin copolymer and the propylene/ethylene copolymer would coincide with the ranges disclosed in the instant claim. According to Pelliconi, for instance, a composition could comprise 45% by weight of a 1/1 mixture of the copolymers corresponding to components (b) and (c) in the instant claim. Each copolymer would therefore comprise 22.5% by weight of the total polymer composition.

8. The range of the weight ratio of the polymer components disclosed by Pelliconi also anticipates that recited in the instant claims. Pelliconi recites that the ratio by weight of the propylene/ethylene copolymer (x, corresponding to component c of the instant application) and the ethylene/olefin copolymer (y, corresponding to component b of the instant application) falls within the range of 1/4 to 4/1. The ratio by weight of copolymer (y) to copolymer (x) would therefore be the reciprocal, also from 1/4 to 4/1. When the ratio  $y/x=1/4$ , the equation can be mathematically rearranged to show that  $x=4y$ . The ratio of the weight of (y) to the total weight of both components (y+x) would therefore become  $y/(y+4y)$ , which is equal to 0.2. Similarly, the ratio of the weight of one component to the total combined weight of copolymers (y) and (x) is equal to 0.8 when the weight ratio of the two copolymers is 4/1. Pelliconi therefore teaches that the ratio by weight of the copolymer corresponding to component (b) to the total weight of the copolymers corresponding to components (b) and (c) falls within the range of 0.2 to 0.8, coinciding with the range disclosed in the instant application.

9. The remaining claims 15-26 all depend from claim 14.

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10. Claim 15 recites that component (a) in the composition of claim 14 comprises no detectable 2, 1 regioerrors in a  $^{13}\text{C}$  NMR spectrum recorded on a 300 MHz instrument.

11. Claims 16 and 24 recite additional limitations regarding the products of the reactivity ratios,  $r_1 \times r_2$ , of the components of the composition of the instant application.

Claim 16 states that the product of the reactivity ratio of component (b) is lower than 5.

Claim 24 states that the product of the reactivity ratio of component (c) is lower than 1.8.

12. Claim 18 recites the limitation that component (b) comprises from 5-40% by mol of derived units of  $\text{C}_4\text{-C}_{20}$   $\alpha$ -olefins. As discussed previously in this Office Action, one component of the composition disclosed by Pelliconi is a copolymer of ethylene and 10-40%, or preferably 10-35%  $\text{C}_4\text{-C}_{10}$   $\alpha$ -olefins ( $\text{¶}$ 0007). This range anticipates the range disclosed in the instant application.

13. Claims 19 and 23 recite additional limitations regarding the intrinsic viscosities of the components of the composition of claim 14. Claim 19 states that the intrinsic viscosity of component (b) greater than 1.25 dL/g but less than 3.0 dL/g. Claim 23 requires that the intrinsic viscosity of component (c) is greater than 2dL/g and less than 4dL/g.

14. Claims 20 and 25 recite additional limitations regarding the enthalpy of fusion for individual components of the polymer composition. Claim 20 recites the limitation that the enthalpy of fusion of component (b) is lower than 50 J/g. Claim 25 states the enthalpy of fusion for component (c) lower than 35 J/g.

15. Claim 21 recites the limitation that component (b) comprises 1-butene or 1-octene. Pelliconi discloses that 1-butene and 1-octene are both suitable examples of

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C<sub>4</sub>-C<sub>10</sub> olefins for use in the synthesis of the compositions disclosed in US2006/0047071 (¶0025).

16. Claim 22 recites that component (c) comprises from 50-80% by mol of propylene derived units and from 50-20% ethylene derived units. As stated previously in this Office Action, Pelliconi discloses that one component of the polymer composition disclosed in US2006/0047071 is a copolymer of propylene and ethylene. Pelliconi recites that the ethylene content of said component falls within the range of 40-15%, or preferably 35-18% (¶0007). By extension, the propylene content of said component would therefore fall within the range of 60-85%, or preferably 65-82%. The disclosure of Pelliconi therefore anticipates the range disclosed in the instant claim.

17. Claim 26 recites the limitations that component (b) in claim 14 is obtained by polymerizing ethylene and one or more C<sub>2</sub>-C<sub>20</sub>  $\alpha$ -olefins in the presence of a metallocene compound comprising at least one cyclopentadienyl moiety which is  $\pi$ -bonded to a central metal, and component (c) is obtained by polymerizing propylene and ethylene in the presence of a metallocene compound comprising at least one cyclopentadienyl moiety which is  $\pi$ -bonded to a central metal.

18. The composition disclosed by Pelliconi comprises a copolymer of ethylene with one or more C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefins and a copolymer of propylene and ethylene, corresponding to components (b) and (c) in the instant claim, respectively. Pelliconi discloses that these copolymers may be prepared via polymerization using a metallocene catalyst. Pelliconi further states that the catalysts disclosed in WO 91/04257 may be in the polymerization reaction (¶0050). The examiner notes that WO 91/04257 teaches the



use of metallocene catalysts comprising a cyclopentadienyl moiety which is  $\pi$ -bonded to a central titanium atom. Pelliconi therefore teaches the use of the catalysts described in the instant claim for the polymerization of the ethylene/ $\alpha$ -olefin copolymer and the propylene/ethylene copolymer.

19. Pelliconi fails to disclose the properties of such as the lack of 2, 1 regioerrors in the  $^{13}\text{C}$  NMR of the composition as discussed in claim 15; the intrinsic viscosity of the individual polymer components which make up the polymer composition, as discussed in claims 14, 19, and 23; the crystallinity or enthalpy of fusion of individual polymer components as recited in claims 14, 23, and 25; or the value of the reactivity ratios,  $r_1r_2$ , as discussed in claims 14, 16, and 24. Pelliconi also does not disclose the properties of the polydispersity index, melt flow rate, or xylene solubility for the polymer corresponding to component (a) as disclosed in claim 14.

20. As noted previously in this Office Action, Pelliconi discloses a polymer composition comprising three polymer components. These polymer components correspond to the polymer components used to prepare the polymer compositions of the instant application both in the types of monomers used to prepare them, as well as the relative amounts of each component in the final composition. Pelliconi also discloses the use of catalysts similar to those disclosed in the instant application for the preparation of each polymer component. As discussed in paragraph 20 of this Office Action, Pelliconi recites that metallocene catalysts comprising a cyclopentadienyl moiety which is  $\pi$ -bonded to a central titanium atom is suitable for the production of the copolymers corresponding to components (b) and (c) of the instant application, As

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recited in claim 26 of the instant application. Pelliconi further discloses the use of Ziegler-Natta catalysts for the polymerization of the propylene polymer which corresponds to component (a) of the instant application (¶0033). The instant application also recites the use of Ziegler Natta catalysts for the polymerization of the propylene resin which comprises component (a) (see ¶0024 of the instant application). As the compositions disclosed in Pelliconi comprise polymer resins which are prepared via polymerization of the same monomers and using the same catalysts as those disclosed in the instant application, the examiner takes the position that one of ordinary skill in the art would reasonably expect that the properties of the polymer compositions taught by Pelliconi would not be materially different from those of the polymer compositions of the instant application.

21. MPEP § 2112 recites that "[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on inherency under 35 U.S.C. 102, on *prima facie* obviousness under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same..." as that required with respect to product-by-process claims. *In re Fitzgerald*, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) As discussed in MPEP § 2113, once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). The

burden is therefore shifted to the applicant to prove that the properties used to define the polymer compositions of the instant application would not be present in the composition disclosed by Pelliconi.

22. Claims 14-26 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 03/051984, published on 06/26/2003. The examiner notes that WO 03/051984 is the publication of PCT/EP02/14068. As Pelliconi et al, US20060047071 is the publication of the National Phase entry in the United States of PCT/EP02/14068, WO 03/051984 and Pelliconi contain the same disclosure. The examiner therefore notes that the instant claims would be unpatentable over the disclosure of WO 03/051984 under the same rationale as outlined in paragraphs 5-21 of this Office Action regarding rejection of the claims over Pelliconi.

23. Claims 14-25 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tanaka et al, US5115030, published on 05/19/1992.

24. Regarding claims 14 and 17, Tanaka discloses polymer compositions comprising 50-99% by weight of a propylene resin (abstract, Column 1 line 63 to Column2, line 2), corresponding to component (a) as described in paragraph 5 of this Office Action and 1-50% by weight of a rubber component comprising a copolymer of ethylene and a C<sub>3</sub>-C<sub>20</sub>  $\alpha$ -olefin copolymer wherein the ethylene content is from 60-95 % by mole,

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corresponding to component (b), and a copolymer of propylene and a C<sub>2</sub>-C<sub>20</sub>  $\alpha$ -olefin wherein the propylene content is from 60-95% by mole, corresponding to component (c) (abstract, Column 1 lines 44-58). The weight ratio of the ethylene copolymer to the propylene copolymer is recited to be from 95:5 to 20:80.

25. The disclosed range of 50-99% by weight for the propylene polymer coincides with the ranges of 50-90% and 50-80% by weight for component (a) as recited in the instant claims 14 and 17, respectively. The instant claims also state that component (b) comprises either 5-25% (claim 14) or 25-9% (claim 17) of the composition of the instant application, and component (c) comprises 5-25% (claim 14) or 25-11% (claim 17) by weight of the total composition of the instant application. Based on the disclosed weight ratio for the ethylene and propylene copolymers as well as the disclosure that the combination of the ethylene and propylene copolymers comprise 1-50% of the total composition by weight, the examiner notes that one of ordinary skill would recognize that the content by weight of the individual ethylene and propylene copolymers in the compositions of Tanaka would coincide with the percent by weight ranges of components (b) and (c) in the instant claim. Using the same mathematical manipulations as discussed in paragraph 8 of this Office Action, the ratio of the ethylene copolymer to the sum of the weights of the ethylene and propylene copolymers for the compositions disclosed by Tanaka would fall within the range of 0.2 to about 0.9, encompassing the claimed range.

26. Claim 14 also discloses that components (b) and (c) are characterized by enthalpies of fusion that are lower than 62 J/g and 45 J/g, respectively. Tanaka

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discloses that the ethylene copolymer corresponding to component (b) and the propylene copolymer corresponding to component (c) both have a crystallinity of 40% or less (Column 2, lines 41-42 and Column 2, lines 67-68). Tanaka does not recite a value for the enthalpies of fusion for the polymer components.

27. Regarding claim 18, Tanaka discloses that the ethylene copolymer corresponding to component (b) in the instant claim contains from 60-95% by mol ethylene (Column 1, lines 48-52). By extension, the  $\alpha$ -olefin copolymerized with the ethylene would comprise 30-5% by mol, anticipating the claimed range of 5-40%.

28. Regarding claim 21, Tanaka discloses that the ethylene copolymer corresponding to component (b) of the instant application is prepared via polymerization of ethylene with a  $\alpha$ -olefin having 3-20 carbon atoms (Column 1, lines 48-52). Both of the claimed olefins, 1-butene and 1-octene, would fall within the scope of this disclosure. Furthermore, Tanaka provides examples in which an ethylene/butene copolymer is utilized in preparing the compositions of US5115030 (See examples 4-9, Table 1).

29. Regarding claim 22, Tanaka recites that the propylene copolymer corresponding to component (c) comprises 60-95% by mole propylene (Column 1, lines 53-58). By extension, ethylene would then comprise 5-30% by mole when ethylene is chosen as the olefin having 2-20 carbon atoms. These ranges anticipate those of the instant claim.

30. Regarding claims 20 and 25, the applicant recites that the enthalpy of fusion of component (b) is lower than 50 J/g (claim 20) and that the enthalpy of fusion of

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component (c) is lower than 35 J/g (claim 25). As noted previously in this Office Action, Tanaka discloses that the crystallinity of the polymer corresponding to components (b) and (c) are both 40% or less, but does not disclose a value for the enthalpy of fusion for either polymer.

31. Tanaka fails to disclose the properties of intrinsic viscosity of the copolymers corresponding to the instant components (b) and (c) as recited in the instant claims 14, 19, and 23; the product of the reactivity ratio  $r_1 \times r_2$  for the individual components as disclosed in the instant claims 14, 16, and 24; or whether the polymer corresponding to component (a) comprises no detectable 2, 1 regioerrors on a  $^{13}\text{C}$  NMR as disclosed in claim 15. Tanaka also does not disclose the properties of the polydispersity index, melt flow rate, or xylene solubility for the polymer corresponding to component (a) as disclosed in claim 14.

32. As stated previously, Tanaka discloses a polymer composition comprising three polymer resins, each of which corresponds to one of the polymer components of the instant application in terms of the composition of the monomers which comprise them. As the compositions disclosed by Tanaka comprise the same materials combined in similar ratios as those of the instant application, the examiner takes the position that one of ordinary skill in the art would expect that the properties of the polymer compositions disclosed by Tanaka would not be materially different from those of the polymer compositions described in the instant claims.

33. MPEP § 2112 recites that “[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or

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her] claimed product. Whether the rejection is based on inherency under 35 U.S.C. 102, on *prima facie* obviousness under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same..." as that required with respect to product-by-process claims. *In re Fitzgerald*, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980). As discussed in MPEP § 2113, once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). The burden is therefore shifted to the applicant to prove that the properties used to define the polymer compositions of the instant application would not be present in the composition disclosed by Tanaka.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Lenihan whose telephone number is (571)270-5452. The examiner can normally be reached on Mon-Thurs: 7:30-5:00, every other Friday 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/  
Supervisory Patent Examiner, Art Unit 4171

Jeffrey Lenihan  
Examiner  
Art Unit 4171

/JL/